Please replace the paragraph extending from page 6, line 26, to page 7, line 11, with the following (Once Amended):

The encoders and methods of the present invention are not limited to use with syringes or in medical injection procedures. Such encoders can be used with other pumps, pressurizing mechanisms or other fluid path elements used in medical injection procedures such as the pumps and fluid path elements disclosed, for example, in U.S. Patent Nos. 5,806,519, 5,843,037 and 5,916,197, assigned to the assignee of the present invention, the disclosures of which are incorporated herein by reference. Indeed, the encoders and methods of the present invention are well suited for any use in which it is desirable to encode information in the medical arts or in other fields of use. In another aspect, the present invention thus provides an encoder including a length of material adapted to transmit or propagate electromagnetic energy therethrough. The length of material includes at least a first indicator positioned along the length of material. As discussed above, the first indicator is adapted to interact with at least a portion of the energy being transmitted or propagated through the length of material in a manner that is detectable to provide information.

Please replace the paragraph at page 11, lines 18-19, with the following (Once Amended):

Figure 16D illustrates an expanded view of one of the indicator notches of Figures 16A through 16C.

Please replace the paragraph extending from page 19, line 21, to page 20, line 3, with the following (Once Amended):

In the embodiment of Figure 4, at least one indicator in each set of indicators, for example, the last indicator in each set of indicators (that is, indicators 610e and 615e) can be used to determine if a syringe is properly attached to and/or properly positioned with respect to a powered injector (not shown in Figure 4). Indicators 610e and 615e (and/or other indicators) can also be used to check parity and/or to calibrate the sensitivity of sensors 630 and 630', which can, for example, be an array of sensors or a single sensor such as a charge-coupled device

(CCD) camera. For example, the indicators of Figure 4 may be angled notches as discussed in connection with the embodiment of Figure 2C. The amount of light sensed by sensor banks 630 and 630' as a result of indicators 610e and 615e, respectively, can provide information for calibrating sensitivity settings for determining whether other indicators are present or absent at various positions on syringe encoder 600.

Please replace the paragraph at page 20, lines 4-16, with the following (Once Amended):

Dedicating the use of indicators 610e and 615e as position and/or calibration indicators, the presence or absence of other indicators can be used to set forth binary code(s) of predetermined lengths. In Figure 4, two binary codes of four bits each are represented by indicators 610a, 610b, 610c and 610d of the first set of indicators and by indicators 615a, 615b and 615d of the second set of indicators. The binary code of the first set of indicators is 1111, while the binary code of the second set of indicators is 1101 (an indicators at the third or "c" position is absent in the second set of indicators). The two binary codes correspond to a particular syringe configuration as can be provided, for example, in a look-up table stored in computer memory. With the use of a sensor or sensors having a relatively wide detection range (for example, a CCD camera) the absolute position of a set of indicators representing a binary code is not as important as the case in which sensors have a relatively narrow range of detection are used, requiring general alignment of an indicator/sensor pairing.

Please replace the paragraph at page 20, lines 17-27, with the following (Once Amended):

Figures 5A and 5B illustrate another embodiment of the present invention (similar to that of Figure 4) in which several bands of indicators 660A, 660B, 660C and 660D extend at least partially around the circumference of a syringe 650 at predetermined positions along the length of syringe 650. As illustrated in Figure 5B, three energy sources 670, 670' and 670'' are positioned at different positions around the circumference of syringe 650 adjacent the rearward end of syringe 650. Four detectors (not shown in Figures 5A and 5B) can be placed in general alignment with sources 670, 670' and 670'' at each band level of indicators (four bands X three sources = twelve detectors in total). Dedicating, for example, the D-band of indicators to

position and/or calibration determinations as described above, one is left with three binary codes of three bits each or 216 possible different encoded configurations.

Please replace the paragraph at page 21, lines 1-11, with the following (Once Amended):

In Figure 6, a syringe encoder 700 includes indicators 710a and 710c that are angled surfaces formed in the surface of syringe encoder 700. Three energy sources 720, 722, 724 are pulsed sequentially as shown in the timing diagram of Figure 6 as waveforms S720, S722, S724. S720 and S724 are positioned over indicators or grooves 710a and 710c, respectively, in the syringe barrel, which transmit light to a receiver 730. In the embodiment of Figure 6, there is no indicator on the syringe corresponding to the fixed position of energy source 720. No energy is, therefore, transmitted to receiver 730 when S722 is pulsed on. Consequently, the reception portion R of the timing diagram shows pulses received from S720 and S724 but not from S722. The presence or absence of indicators at each source can represent a digital code as described above.

Please replace the paragraph at page 21, lines 12-18, with the following (Once Amended):

In the above discussion, syringe configuration information is read in a static fashion. Syringe configuration information can also be read in a dynamic fashion using the syringe encoding systems of the present invention. As syringe encoder 800 is moved to the left in the orientation of Figure 7 (for example, as a syringe is attached to a powered injector), indicators 810a and 810b redirect at least a portion of light energy from light source 820 through syringe encoder 800 to a receiver 830 as illustrated with arrows in Figure 7. A received signal R2 provides information on syringe configuration.

In the Claims:

Please add new claims 40-49 as follows:

40. The syringe of Claim 1, further comprising: